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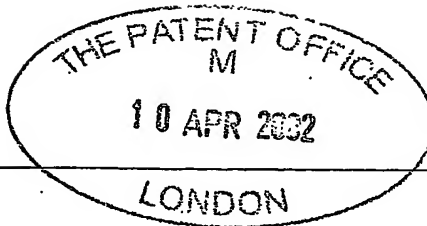
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2. Patent application number  
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10 APR 2002 0208274.1

3. Full name, address and postcode of the or of each applicant (underline all surnames)  
NUMATIC INTERNATIONAL LIMITED  
2 Knoll Road  
Camberley  
Surrey GU15 3SY  
United Kingdom  
04341608002  
Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation  
United Kingdom

4. Title of the invention  
MOPPING TROLLEYS

5. Name of your agent (if you have one)  
FJ CLEVELAND  
"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)  
40/43 Chancery Lane  
London  
WC2A 1JQ

Patents ADP number (if you know it)  
07368855001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number	Country	Priority application number (if you know it)	Date of filing (day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application	Number of earlier application	Date of filing (day / month / year)

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a) any applicant named in part 3 is not an inventor, or  
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Description 11 ✓

Claim(s) - ✓

Abstract -

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Statement of inventorship and right to grant of a patent (*Patents Form 7/77*) -

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Any other documents (please specify) -

11.

I/We request the grant of a patent on the basis of this application.

Signature

*FJ Cleveland*

Date

FJ Cleveland

10 April 2002

12. Name and daytime telephone number of person to contact in the United Kingdom

Mr DC Evans - 020 7405 5875

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## Mopping Trolleys

This invention relates to mopping trolleys and has particular reference to mopping trolleys for facilitating the cleaning of a floor area is using a mop. In a typical floor cleaning operation using a mop, the floor is first wetted with water or with a cleaning liquid and is then a mopped dry. In the drying operation, the mop is wrung out or squeezed in order to remove surplus water, and is then passed over the floor to take up and absorb the surplus water to dry the floor. This operation can continue until the mop it has become relatively and is unable effectively to adsorb water or liquid. At this stage the mop is again squeezed to express surplus water and the mopping operation is repeated.

A typical mopping trolley comprises a wheeled carriage carrying a bucket with a mop pressing device disposed over the bucket which press is provided with lever means to squeeze a mop head inserted in the press and to express surplus water into the bucket. Our co-pending PCT Application No GB00/01688 describes and claims an improved mop press which comprises first pressing means, second pressing means and distortion means carried by at least one of pressing means characterised that in use, with a mop

head inserted between the pressing means, the first and second pressing means are brought together to squeeze the mop head, the arrangement being such that the distortion means in contact with the mop head distorts in response to the uneven distribution of the mop head within the press to permit pressure to be applied more uniformly over the surface of the mop head whereby a substantial proportion of the liquid contained within the mop head is expressed irrespective of the type and size of the mop head and without needing to adjust the relative space between said first and second pressing means.

Our co-pending application referred to above is concerned to express as much water as possible from the mop head during each "squeezing" operation. In using mopping systems of the type described above, however, the operative usually wets the floor using the dirty water previously expressed into the bucket. While this has been a common practice for many years, the fact remains that it is more effective to clean a floor with clean water or cleaning fluid than it is using water or cleaning fluid that has already been used. In order to overcoming this problem, therefore, it has been proposed to have a two bucket system in which the two buckets are mounted in juxtaposition on a mopping trolley. The press is arranged to express water into one of the

buckets.

Where it is desired to conduct a mopping operation using fresh cleaning fluid on each application, and to discard  
5 fluid squeezed from the mop head, the two bucket system has been found to be satisfactorily but suffers from the significant disadvantage that when the fresh cleaning fluid in the "clean" bucket has become exhausted, it is necessary for the operative to move from there area of cleaning  
10 operations and returned to a resupply station to replenish the "clean" fluid in the appropriate bucket.

The person skilled in the cleaning art will be well aware of the fact that the larger the receptacle or "clean"  
15 bucket, fewer will be the number of journeys to a re-supply station for recharging the "clean" bucket. The obvious approach here, therefore, is to make the trolley of a size such that it can accommodate the largest volume of fluid in the "clean" and in the "the dirty" buckets as possible. It  
20 will also be appreciated, however, that there is a practical limit to the size of the various buckets to the size which, when full, can be readily handled by an operative. In practice, therefore, twin bucket mopping trolleys tend to be restricted to bucket sizes of  
25 approximately two imperial gallons or approximately 11

litres.

We have found, however, that by using, in a mopping trolley, buckets of dissimilar size, the efficiency of the mopping operation for a given size of trolley may be substantially improved.

According to one aspect of the present invention, therefore, there is provided a mopping trolley comprising carriage means capable of translation movement over a surface, a mop press assembly carried by said carriage means for expressing liquid from a mop head inserted therein and a receptacle or bucket accommodated for movement with said carriage means and arranged to receive liquid expressed from a mop head during pressing wherein the carriage means also accommodates a second receptacle or bucket for "clean" or fresh liquid characterised in that said second or "clean" receptacle or bucket has a larger capacity than said first receptacle or bucket.

20

The two buckets in the mopping trolley in accordance with the present invention may be disposed one behind the other in which case the mop press will need to be constructed and arranged to discharge into the rearward receptacle. In this case, the rear receptacle would generally be the

smaller of the two since the "clean" bucket would need to be disposed at the front of the trolley for ease of access by an operative.

5 In an alternative embodiment of the present invention, the two buckets may be disposed side-by-side; in this arrangement, the mop press may be provided with a side discharge for the discharge of water to one side into the smaller receiving receptacle.

10

In order to improve the compactness of the design of the trolley and to maximise the efficiency of the mopping operation, it is preferred that the receptacle or "dirty" bucket have a projection extending from its side adjacent  
15 the clean bucket which overlays part of or otherwise is a fit with the shape of the "clean" bucket. In this embodiment, the mop press is constructed and arranged to discharge water into this projection and/or the receptacle bucket directly. The "clean" bucket may be contoured  
20 accordingly to accommodate the overlaid portion. In one aspect of the invention, the clean bucket is shaped to define a recess in the surface to accommodate the projection. The recess may be closed to form part of the volume of the bucket. The projection should be of a depth  
25 designed to inter-engage with a corresponding contoured



portion in the "clean" bucket and yet enabled the "dirty" bucket to be removed for emptying without the need to lift the bucket very substantially relative to the "clean" bucket while the latter remains in the carriage.

5

Experience has shown that best results are obtained with the capacity for the "clean" bucket at least 50% greater than that of the receptacle for the "dirty" water expressed from the mop. In another embodiment of the present invention, the capacity of the "clean" bucket is at least  
10 twice that of the "dirty" bucket. The selection of the relative sizing of the buckets is dependent, to some extent, on the nature of the floor being cleaned. It is clear that in relatively hot climates where there is  
15 relatively rapid evaporation of liquid from the floor during the cleaning part of the procedure, the drying operation will remove relatively little water and hence, I relatively speaking, the size of the "dirty" bucket relative to the size of the "clean" bucket can be reduced  
20 still further. Once the significance of the different sizes of bucket has been appreciated, it is a relatively simple matter for the person skilled in the art to determine the optimum size for the given circumstances and conditions in which the system is to be used.

25

By using the mopping trolley in accordance with the present invention, we have found that the efficiency of operation is improved very considerably. For a given size of trolley, a much greater amount of "clean" cleaning fluid  
5 may be accommodated within the "clean" bucket thereby reducing the number of occasions on which an operative has to return to a cleaning station to replenish supplies of cleaning fluid.

10 Following is a description by way of example only and with reference to the accompanying informal drawings, of methods of carrying the invention into effect.

In the drawings: --

15

Figure 1a is a side view of a prior art press using a two-bucket arrangement.

Figure 1b is an end view of the apparatus of Figure 1a.

20

Figure 2 is a side view of a mopping trolley in accordance with the present invention.

Figure 3 is an end view of a detail of an alternative  
25 embodiment of a mopping trolley in accordance with the

present invention.

Figure 4 is a plan view of the bucket arrangements of Figure 3.

5

Turning first to the drawings in accordance with prior art in Figure 1 A, a mop press indicated generally at 10 has an operating lever 11 the operation of which is adapted to bring pressure plates 12 and 13 together in order to  
10 squeeze a mop head 15 disposed therebetween. The application of, in this case downward, pressure on lever 11 will serve to press mop head 15 between plates 12 and 13 to express water from the mop head, which is discharged through an orifice 16 in the base of the receptacle  
15 defining the mop press 10. The water 17 expressed through orifice 16 is discharged into a waiting bucket 18. An identical bucket 19 (see Figure 1b) is disposed in side-by-side relationship with bucket 18 and contains fresh cleaning fluid for application to the floor by the mop.

20

In Figure 2, the mopping trolley in accordance with the present invention comprises a generally tubular frame 20 having a central upstanding portion 21 and a space frame portion 22 (see Figure 3) which serves to maintain each  
25 side of the tubular frame in spaced parallel relationship.

The frame 20 has, towards each corner, a downwardly projecting portion 23 which carries at its lower end a caster indicated generally at 24. The base frame member 25 of the trolley carries a plastic tray 26 adapted to  
5 accommodate a pair of buckets 27 and 28 respectively. The bucket 27 has approximately twice the capacity of bucket 28 and is adapted to be filled with cleaning fluid for application to the floor by dipping a mop head into the fluid in bucket 27, shaking the surplus from the mop head  
10 and then applying the cleaning fluid to the floor in even strokes to distribute cleaning fluid thereover.

The transverse space frame 22 to part of which is shown in Figure 3 carries a mop press of known construction 30 which  
15 is operated by means of an operating lever (not shown). The mop press 13 is provided with a side discharge orifice 31 adapted to discharge into the smaller bucket 28. The top 32 of press 13 is adapted to receive a mop head for squeezing and on operation of the lever to squeeze the mop;  
20 water expressed from the mop head is directed to the discharge orifice 31 for subsequent collection in the smaller receptacle 28.

The embodiment shown in Figure 3 provides for the larger  
25 receptacle 27 and the smaller receptacle 28 to be

accommodated in side-by-side relationship. In this embodiment, the physical height of each receptacle is the same but the volumetric capacity of the receptacle 27 is approximately twice that of the "dirty" receptacle or bucket 28. The upper part of bucket 28 is provided with a lateral projection 40 towards the rear of bucket 28 and on one side thereof, the projection 40 being of a sufficient depth that water can be discharge into it without significant splashing and the base of the projection is closed to guide the water entering projection 40 into the body or volume of receptacle 28. The larger container 27, which is adapted to contain clean water, is correspondingly shaped at 41 to accommodate the projection 40 from the adjacent bucket. The wall of the bucket 27 is shaped over its whole depth to accommodate the projection 40 of bucket 28 - see Figure 4. In this way, the "clean" bucket 27 can be removed from tray 25 without disturbing bucket 28.

In an alternative embodiment, a portion of the body of bucket 41 may be expanded to extend under the overlay portion 40 of bucket 28 thereby increasing the volume of the "clean" bucket 27 still further.

In each case the discharge orifice 31 on the mop press 13 is disposed to one side as shown in Figure 3 so as to

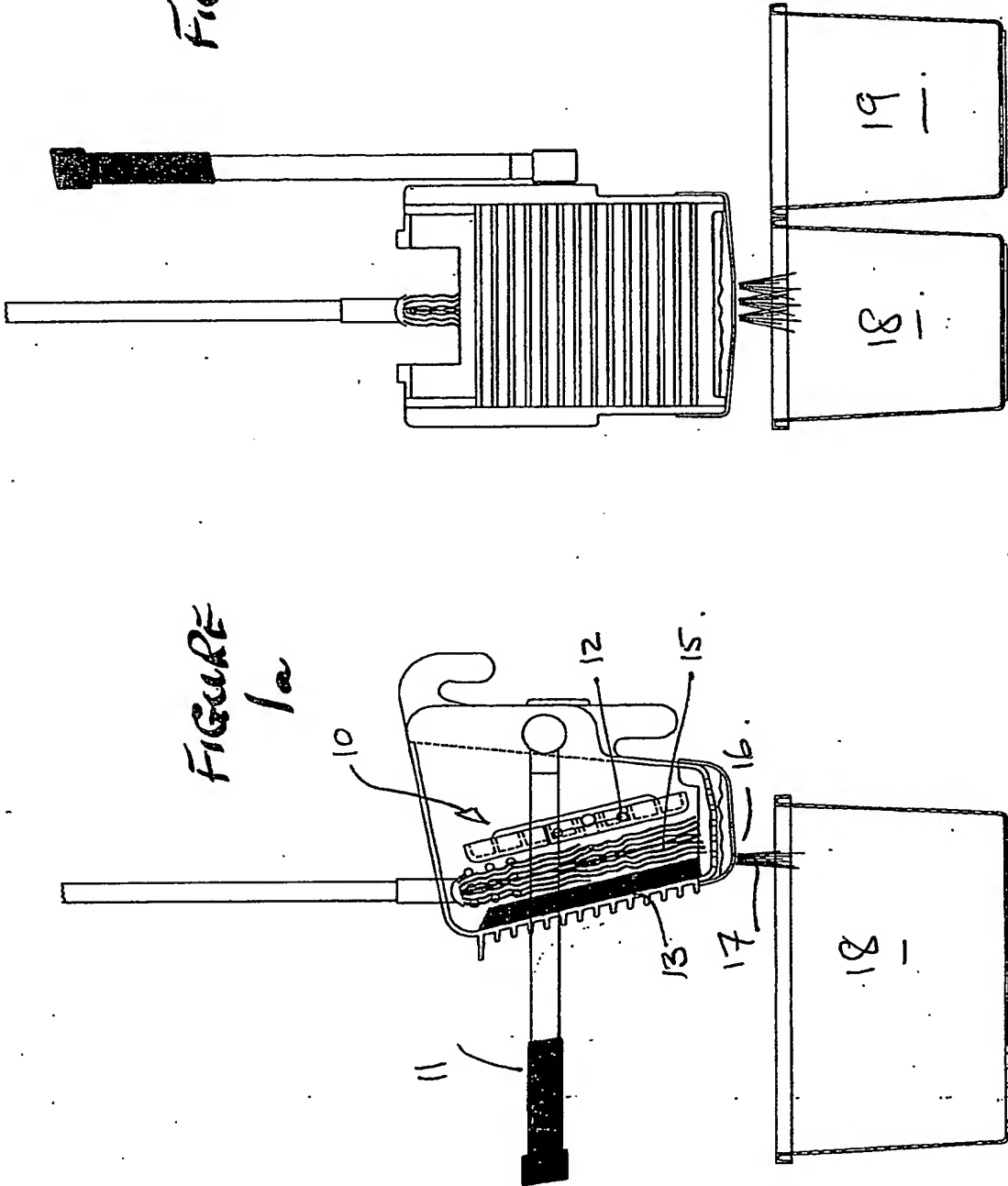
discharge directly into the portion 40. The relatively shallow depth of the overlay portion 40 means that the bucket 28 can be removed easily with bucket 27 remaining in place without requiring an operative to lift a heavy bucket  
5 full water to a considerable height.

It will be appreciated by the person skilled in the art, therefore, that for any given size of mopping trolley, the arrangements in accordance with the present invention will  
10 provide for a significant prolongation of the duration of mopping compared with the prior art arrangement described and illustrated with respect to Figures 1a and 1b' above.

15

(A)

FIGURE  
1a



(B)

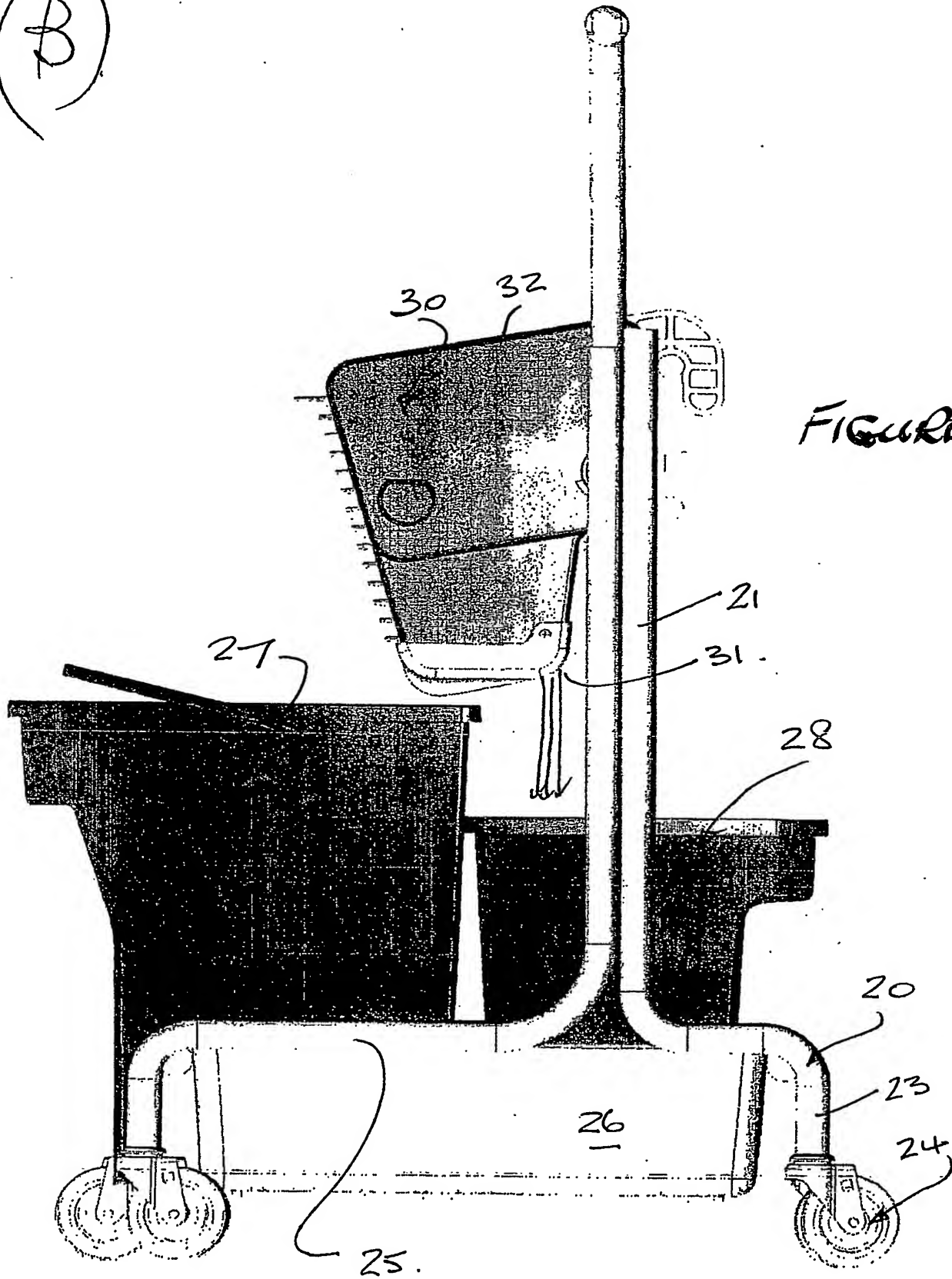


FIGURE 2.



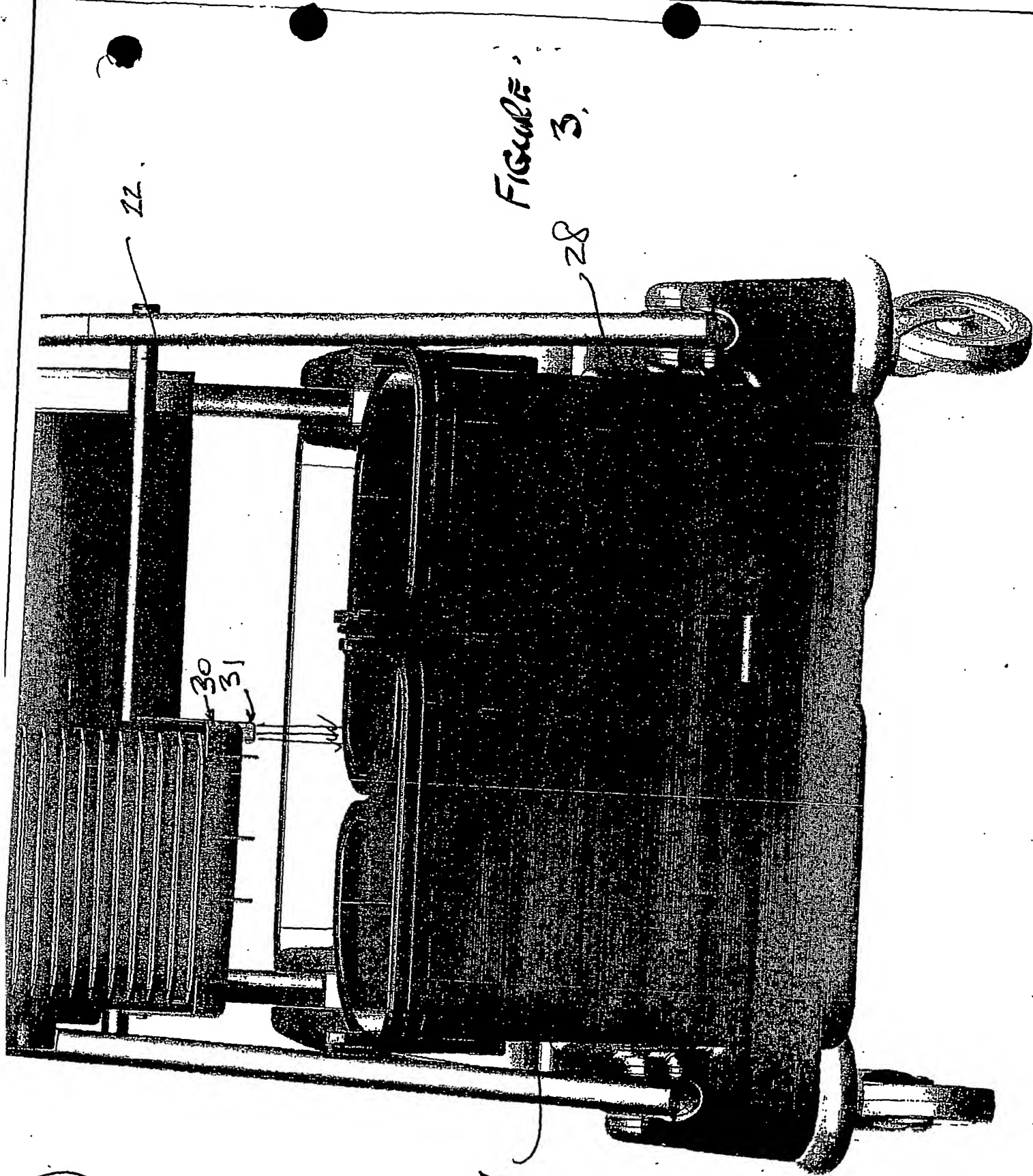
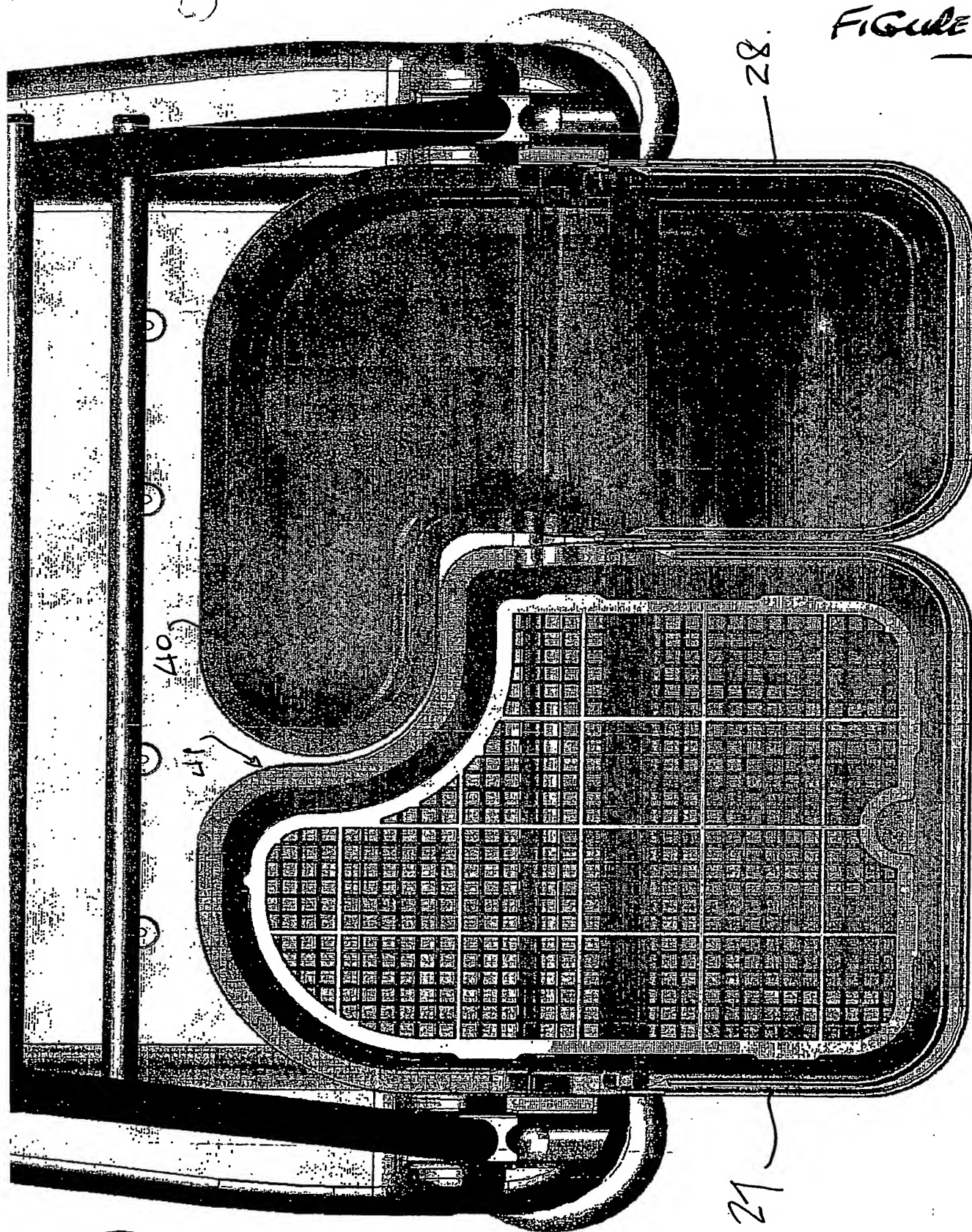


FIGURE 3.

(C)

FIGURE 4.



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